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October 30, 2000

Via Hand Delivery

Magalie Roman Salas, Secretary
Federal Communications Commission
445 12th St., S.W., Room TW-B204
Washington, D.C. 20554

Re: Ex Parte Presentation
File Nos. 48-SAT-P/LA-97, 89-SAT-AMEND-97,
130-SAT-AMEND-98, Docket No. ET 98-206

Dear Ms. Salas:

On October 27, 2000, Mark MacGann, Vice President of SkyBridge LLC ("SkyBridge"); Guy Christiansen, SkyBridge Director of Regulatory Affairs; Didier Casasoprana, and Damien Garot, SkyBridge Senior Engineers; Leslie Taylor and Carlos Bello, consultants to SkyBridge; and the undersigned counsel to SkyBridge meet with the following members of the Commission staff to discuss matters relevant to the above-referenced proceedings: Ari Fitzgerald, Thomas Tycz, Cecily Holiday, Harry Ng, Christopher Murphy, Jennifer Gilsenan, Julie Garcia and Alex Royblat of the International Bureau; and Bruce Franca, Thomas Derenge, Saj Durrani and Anthony Asongwed of the Office of Engineering and Technology. At the meeting, copies of the attached materials were distributed and discussed.

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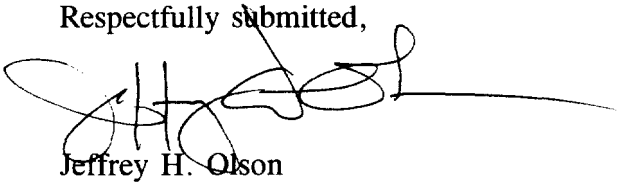
If there are any questions regarding this matter, please contact the undersigned.

Respectfully submitted,

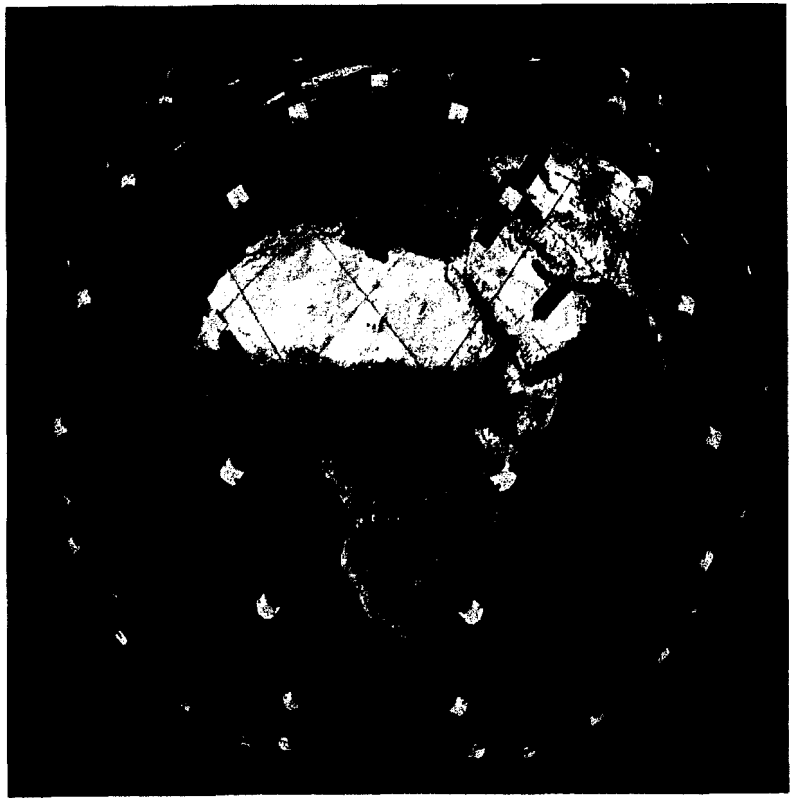


Jeffrey H. Olson
Attorney for SkyBridge L.P.

Attachment

cc: Ari Fitzgerald
Thomas Tycz
Cecily Holiday
Harry Ng
Christopher Murphy
Jennifer Gilsenan
Julie Garcia
Alex Royblat
Bruce Franca
Thomas Derenge
Saj Durrani
Anthony Asongwed

SkyBridge

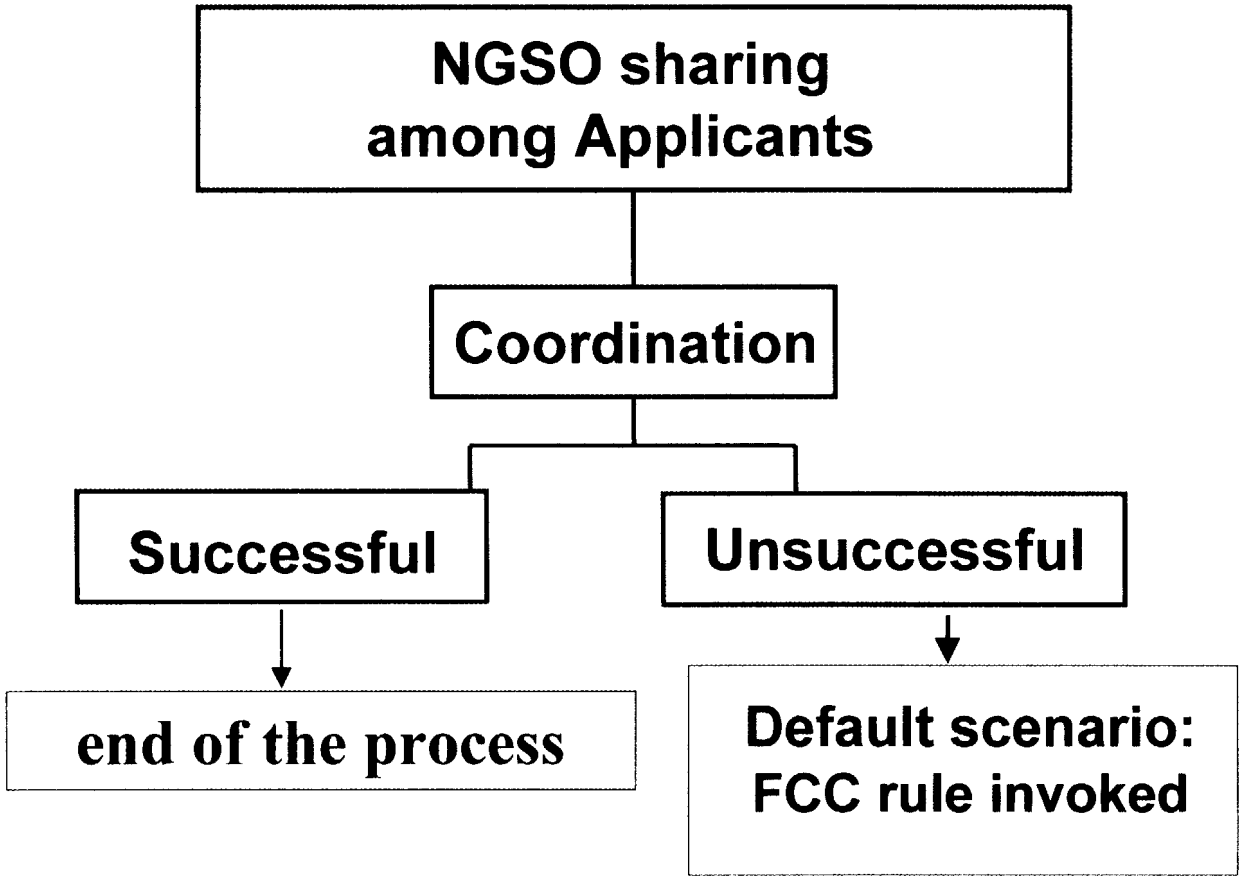


A solution to NGSO/NGSO coexistence in the Ku-band

Washington D.C., October 26 2000

SkyBridge L.P.

Licensing process



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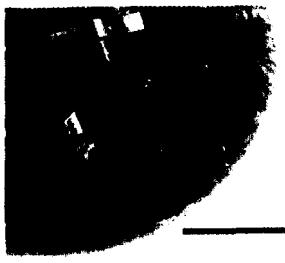

Home Spectrum

One NGSO system in operation

- ✓ possible use of all the spectrum available by all the satellites

X NGSO systems in operation

- ✓ segmentation of the spectrum available by X,
- ✓ each satellite of a constellation can use 1/X of the spectrum available

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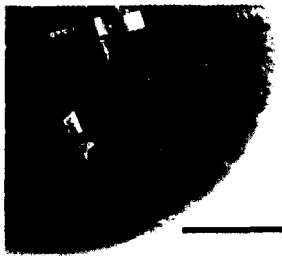


Home Spectrum (1/2)

Home spectrum

+ Simple to implement
+ equal access to spectrum
+ takes into account that some systems may never be launched
– if more than one system is launched it corresponds to band segmentation

If more than 1 system is launched:
Home Spectrum = Band Segmentation

SkyBridge

Home Spectrum (2/2)

Advantages

+Simple on a regulatory basis

+Reasonably easy to implement on a technical basis before satellites are built

Drawbacks

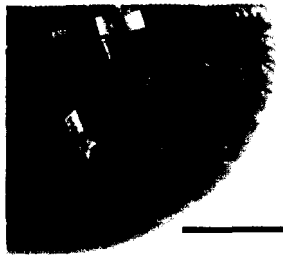
– undermines economic viability of systems

– FCC must arbitrarily impose frequency plans

– not all frequencies are fungible

– clear advantage given to the newcomer

SkyBridge



Business needs

All applicants seek access to a large amount of spectrum

- ✓ to support broadband-type applications
- ✓ to have sufficient capacity to remain affordable to the public
- ✓ to have some flexibility in an environement where there are many interference scenarios

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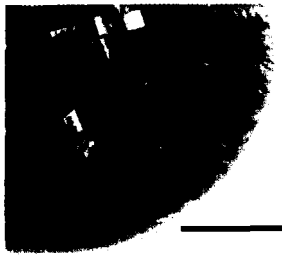

Frequency plans

a NGSO Frequency plan is driven by

- ✓ the need to co-exist in the interference environment
- ✓ the services to be provided

(ratio of forward spectrum/ return spectrum)

- ✓ radio equipment and link budget design (self interference, filtering...)
- ✓ frequency reuse patterns

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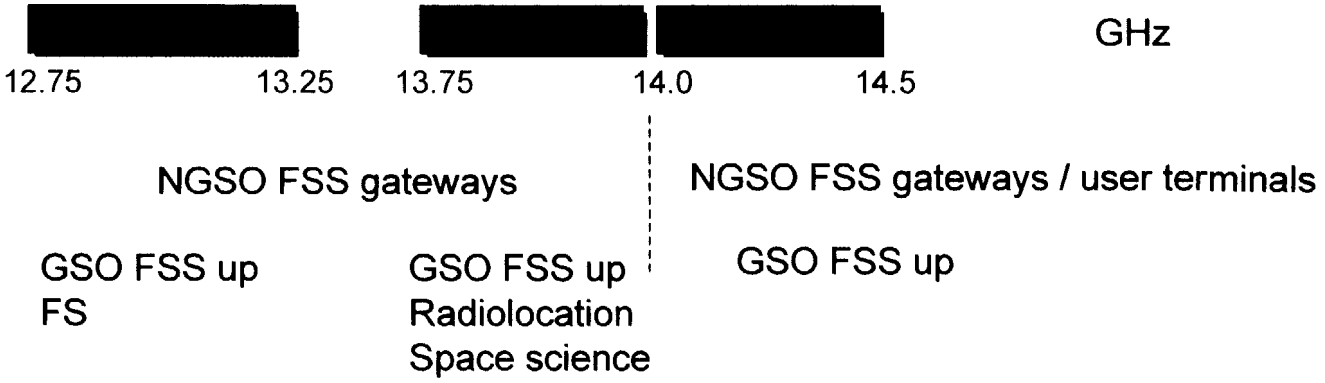
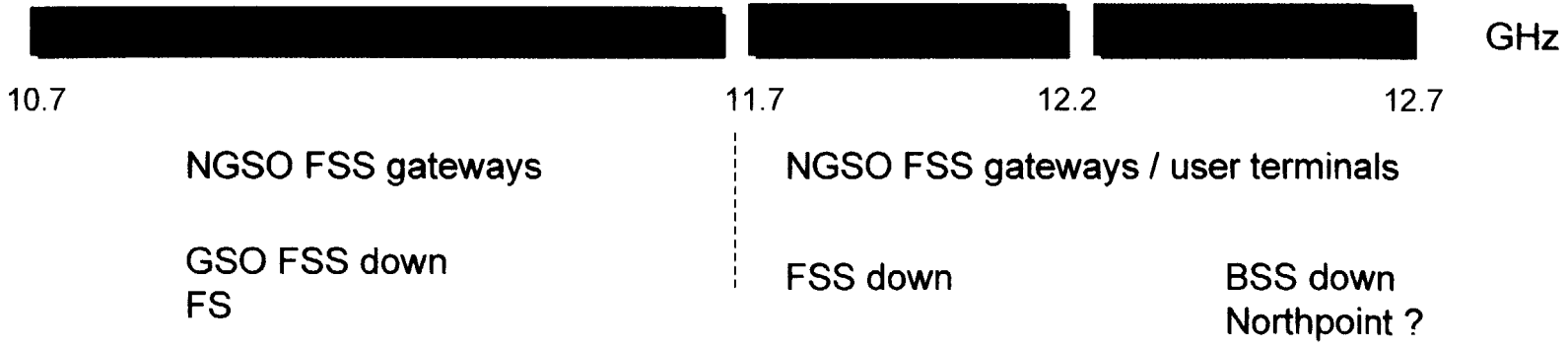
Different status of the different bands

NGSO FSS up-link bands



NGSO FSS down-link bands



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Home Spectrum implementation

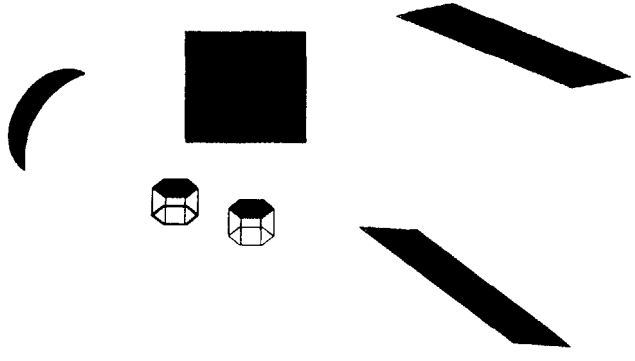
If more than one system is launched

FCC has to arbitrarily assign the spectrum for each of the systems to be used 100% of the time

SkyBridge

Home Spectrum: uneven and arbitrary constraints

System to be launched



- parameters of operational systems are well known
- can adapt its design
- can chose between coordination and reference scenario

Operating systems

- cannot change design
- Need to over-design for sharing
- need to optimise operation

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The Home Zone Solution

The aim is to present a simple default scenario to

- ✓ Optimize spectrum resources
- ✓ Maximize each system's capacity
- ✓ Guarantee equal access to spectrum for each of the seven systems
- ✓ Create incentives for coordination

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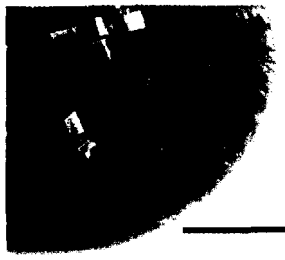

Evolution of the default solution: Home Zone

The idea of the Home Zone solution is:

- ✓ To keep the advantages of the Home spectrum concept
  - Simplicity
  - Equal access to spectrum
  - Incentive to enter more detailed coordination to optimize default scenario
- ✓ To benefit from the experience obtained in the GSO/NGSO sharing discussions
- ✓ To adapt 2 GHz solution to the technical characteristics of NGSO FSS systems
  - Take into account antenna discrimination of NGSO FSS systems
  - Optimization of access to spectrum by each system
  - Use of the mitigation techniques inherent to NGSO systems
  - Maximization of the capacity of each NGSO system

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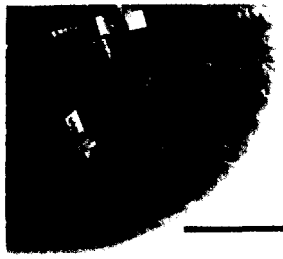


The Home Zone Solution

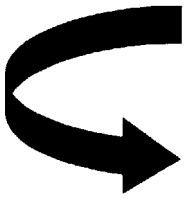
Corresponds to a first 'draft' coordination between operational systems

- ✓ More optimal than Home spectrum concept, but not ideal in terms of capacity and capacity use
  - ❖ Will still incentivize NGSO operators to collaborate to find the optimal solution
- ✓ Each system has, **as a minimum**, access to an identical amount of spectrum, irrespective of the date of launch
- ✓ Most of the time, all systems will have access to a larger amount of spectrum

SkyBridge

The Home Zone solution

Main advantages:



- ✓ Simple
- ✓ In non-cooperative cases, ALL systems have EQUAL treatment and EQUAL access to spectrum

- ✓ Provides flexibility to ALL systems
- ✓ Enables more capacity for ALL systems
- ✓ Evolutive solution that enables to swiftly inject additional systems without requiring major changes for operational systems

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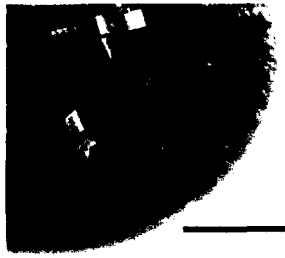

The "Home Zone" Solution

- ✓ The home zone of a NGSO satellite is a contour around a satellite as seen from the ground
- ✓ An earth-based angle defines the width of the home zone
- ✓ In the home zone, the spectrum is segmented between the NGSO systems
- ✓ When entering into a home zone, a satellite from an other constellation cannot use the bands attached to the home zone
- ✓ Outside of the zone, the whole spectrum is available

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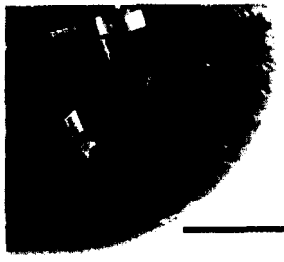

The "Home Zone" Solution

Operational criteria :

- ✓ +/-10° operational Home Zone
- ✓ link balancing
  - On the downlink, equivalent pfd levels generated on the ground
  - On the uplink, equivalent off axis e.i.r.p density after 10°

➡ Guaranty that the 10° Home Zone protects everybody

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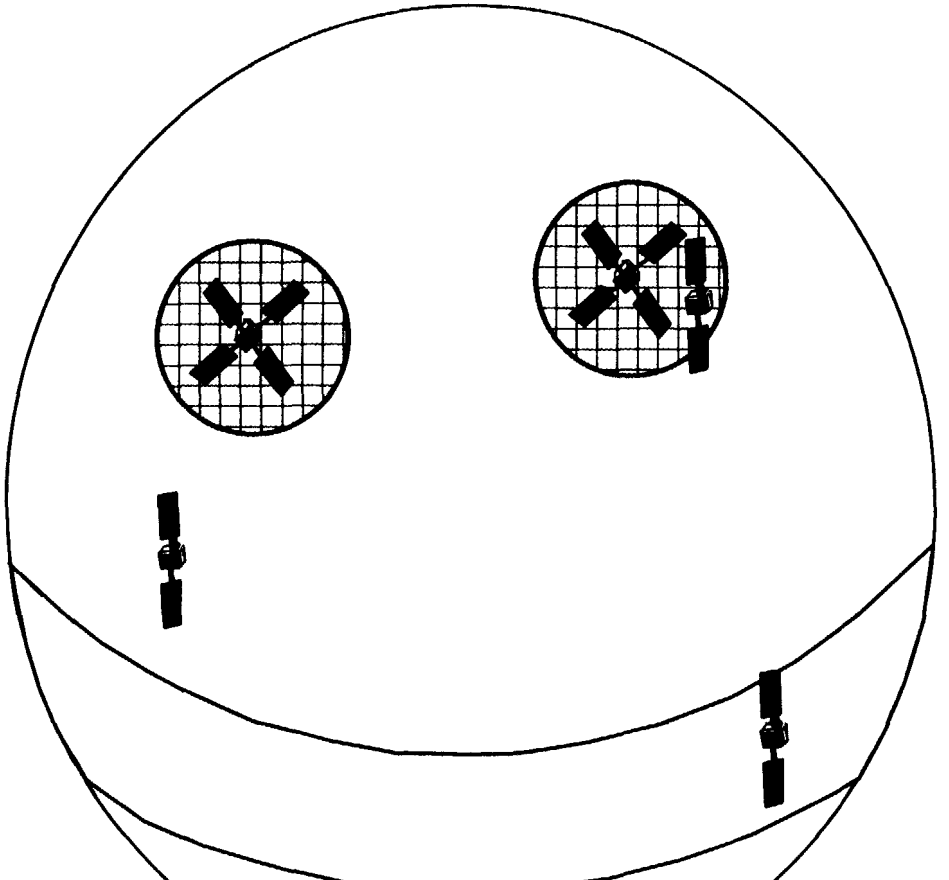
Home Zone
Example with 2 systems



Spectrum available for system

Whole spectrum

Half of the spectrum

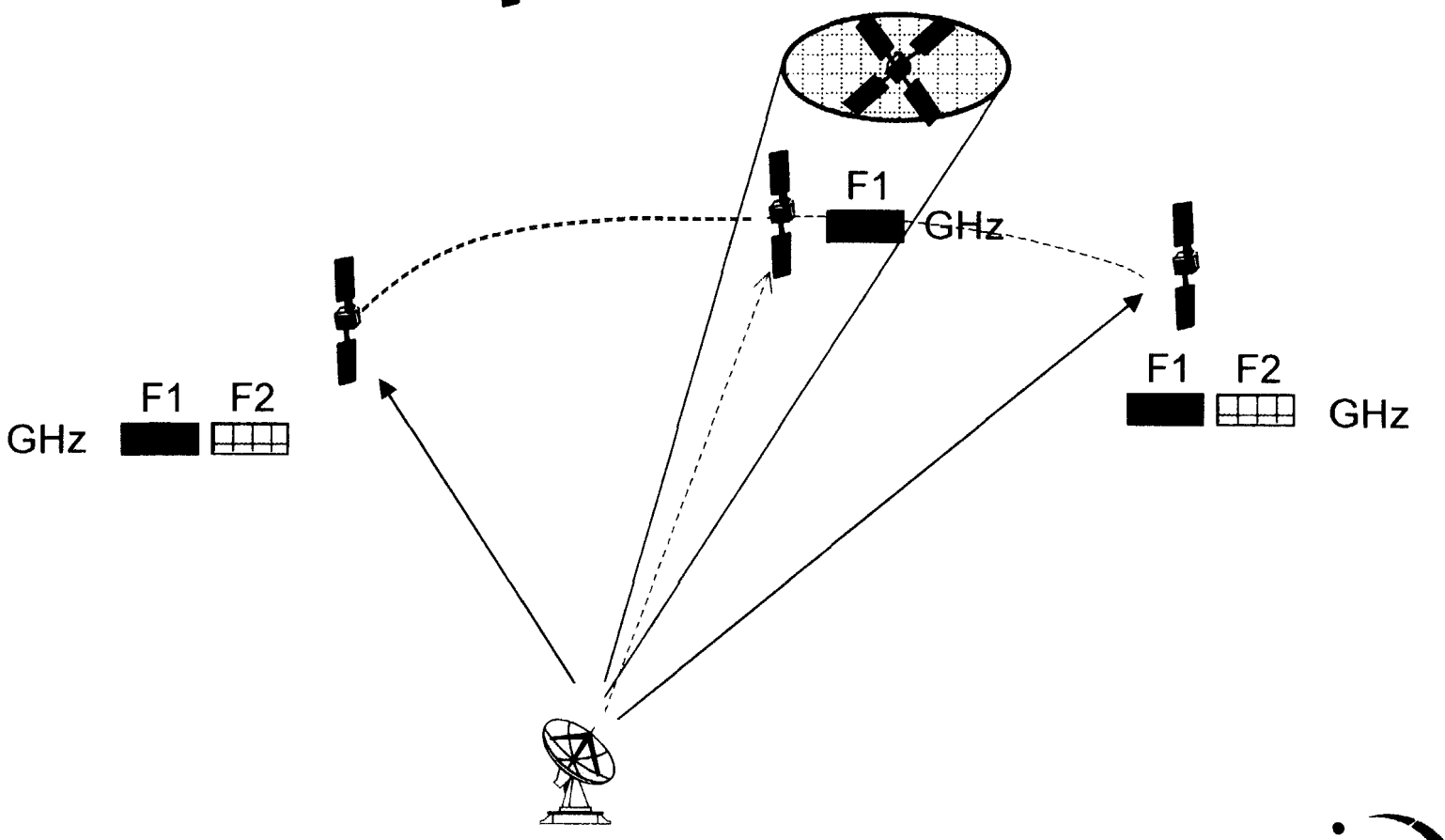
GSO arc avoidance: no spectrum

Fish-eye view from a terminal

SkyBridge

Home Zone
Dynamical example with 2 systems

Spectrum available for system:



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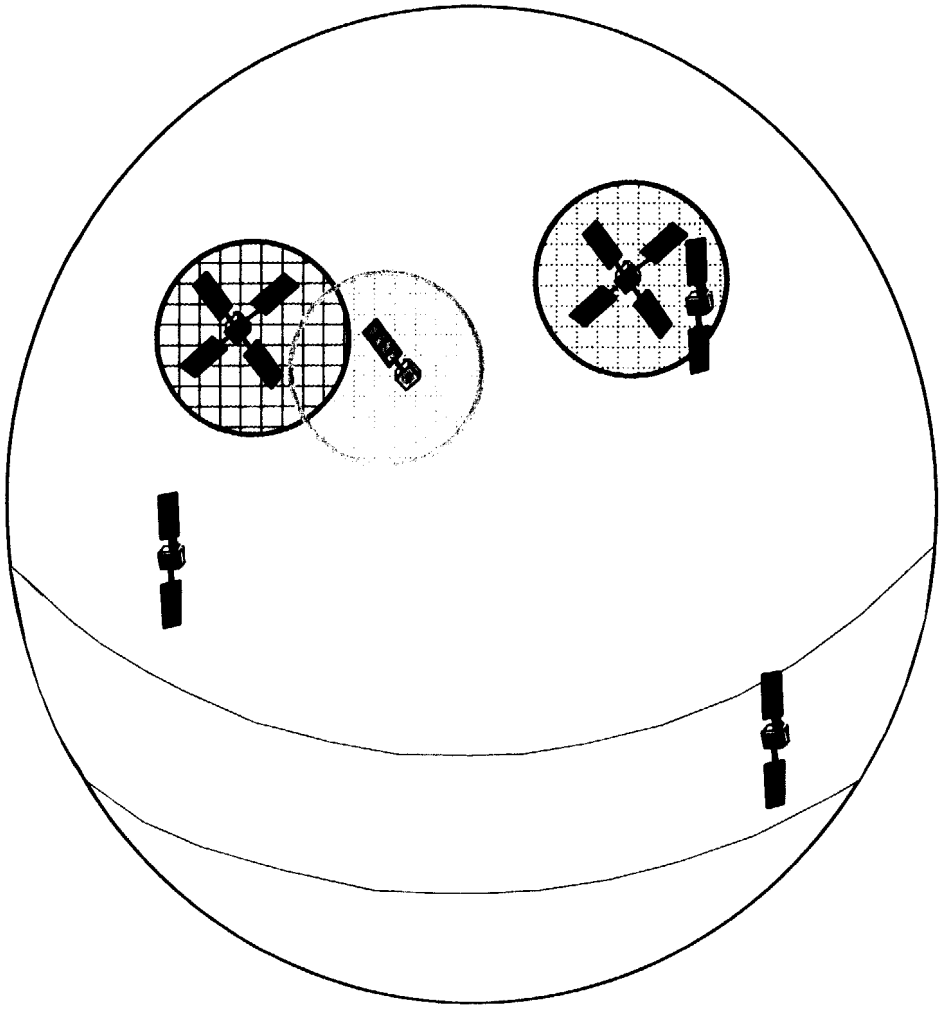
Home Zone
Example with 3 systems



Spectrum available for the Blue system

Whole spectrum

Half of the spectrum

Half of the spectrum

No Spectrum

Fish-eye view from a terminal

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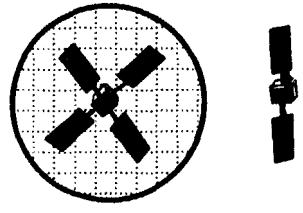
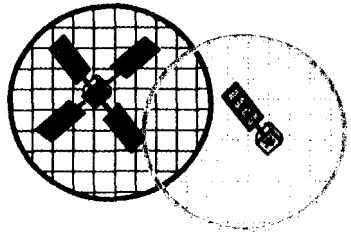
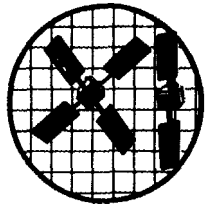
Possible Scenarios in the Home Zone Concept
Two Systems



Whole spectrum available to both systems



Whole spectrum available to both systems



Home zone implemented: half of the spectrum available to both systems

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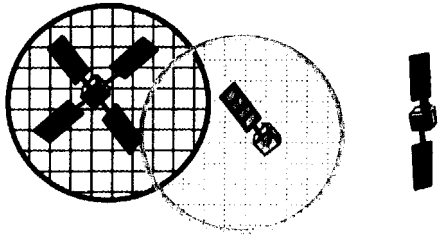
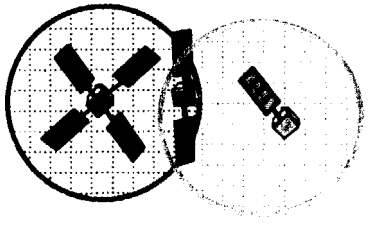
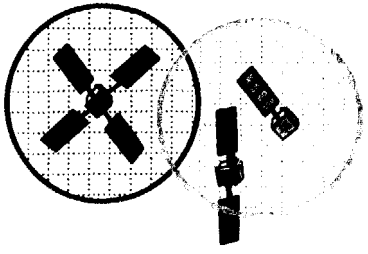
Possible Scenarios in the Home Zone Concept
Three Systems



Whole spectrum available to all systems



Home zone implemented: half of the spectrum available to all three systems



Home zone implemented: half of the spectrum available to red and blue systems. Green system can use whole spectrum

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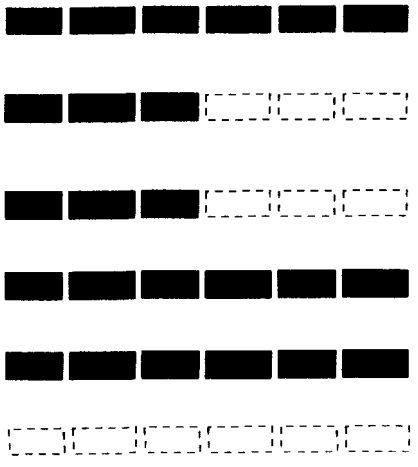
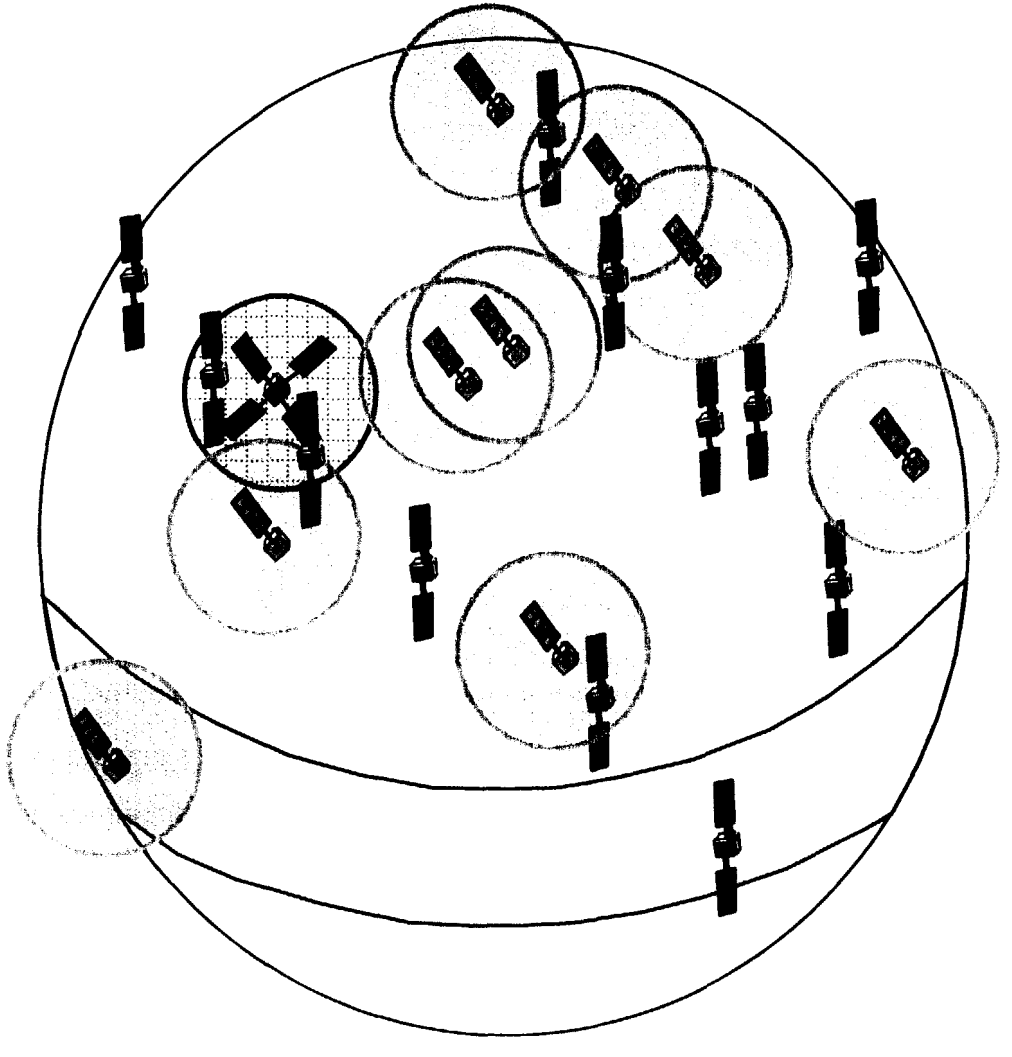
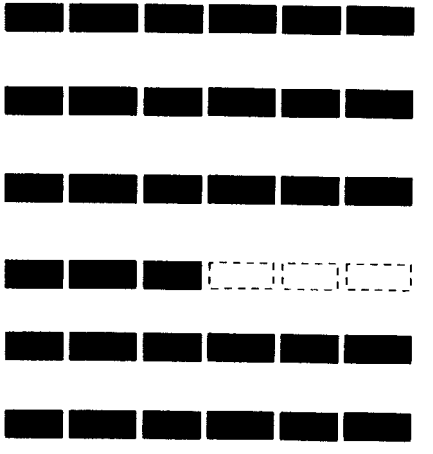
Home Zone
Example with 3 systems

GHz





GHz



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The "Home Zone" Approach

For the interfering satellite

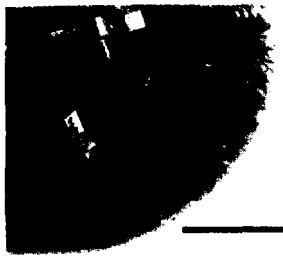
- ✓ For most of the time, the whole spectrum is available
- ✓ The conditions of the home zone constrain systems for only a limited time
- ✓ The Home Zone is an operational sharing technique that can be employed when more NGSO systems are launched

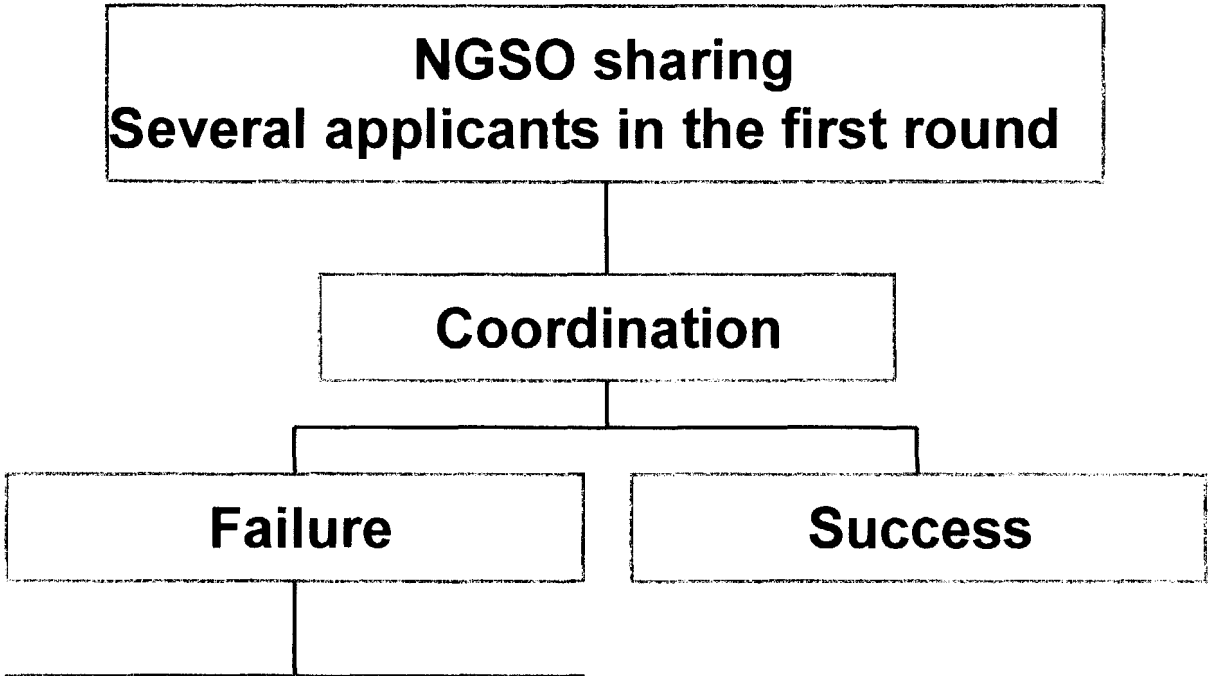
For the interfered satellite

- ✓ the certainty of having a specific band available 100% of the time

SkyBridge

Licensing process: the solution





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